U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
(formerly National Bureau of Standards-NBS)
OFFICE OF STANDARDS SERVICES

COMMERCIAL STANDARD CS271-65
GRADING OF ABRASIVE GRAIN
FOR GRINDING WHEELS

Commercial Standard CS271-65, Grading of Abrasive Grain for Grinding Wheels, was withdrawn by the U.S. Department of Commerce in 1972.

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The following standard was used to replace this Commercial Standard: ANSI B74.12, Specifications for the Size of Abrasive Grain - Grinding Wheels, Polishing and General Industrial Uses.

The following organizations can provide guidance and assistance for additional information on the subject and on their standards and documents and/or copies, contact:

American National Standards Institute (ANSI)
11 West 42nd Street, 13th floor
New York, New York 10036, USA
Telephone: (212) 642-4900; Orders Only Fax: (212) 642-1286
Fax: (212) 398-0023
Internet: http://www.ansi.org

Abrasive Grain Association
Diamond Wheel Institute
Grinding Wheel Institute (GWI)
30200 Detroit Road
Cleveland, Ohio 44145-1967, USA
Telephone: (440) 899-0010
Fax: (440) 892-1404

This organization can provide assistance and information on their publications and standards [examples: GWI B74.ll, Specifications for Tumbling Chip Abrasives (revision of ANSI B74.11-86); GWI B74.4 (revision of GWI B74.4, Procedure for Bulk Density of Abrasive Grains (revision of ANSI B74.4) and others].

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Coated Abrasive Manufacturers Institute (CAMI)
c/o Thomas Associates, Inc., 1300 Sumner Avenue
Cleveland, Ohio 44115-2851, USA
Telephone: (216) 241-7333; Fax: (216) 241-0105

FEDERAL REGISTER

DEPARTMENT OF COMMERCE

National Bureau of Standards

VOLUNTARY PRODUCT STANDARDS

Notice of Action on Proposed Withdrawal

In accordance with the provisions of § 10.12 of the Department's published "Procedures for the Development of Voluntary Product Standards" (15 CFR Part 10, as amended; 35 F.R. 8349 dated May 28, 1970), notice is hereby given of the withdrawal of the 36 commerical standards (CS) and 25 simplified practice recommendations (SPR) identified below. Each of these standards has been found to be obsolete, no longer technically adequate, no longer generally acceptable to and used by the industry, inconsistent with established policy, or otherwise inappropriate, and revision is not feasible or would serve no useful purpose.

CS 14–51 Boys' sport and dress shirt (woven fabrics) size measurements.
CS 33–43 Knit underwear (exclusive of rayon).
CS 56–60 Strip oak flooring.
CS 70–41 Phenolic disinfectant (emulsifying type).
CS 71–41 Phenolic disinfectant (soluble type).
CS 90–58 Power cranes and shovels.
CS 101–63 Flue-connected oil-burning space heaters and recessed heaters with vaporizing pot-type burners.
CS 104–63 Warm-air furnaces equipped with vaporizing-type oil burners.
CS 106–57 Boys' pajama sizes (woven fabrics).
CS 109–44 Solid-fuel-burning forced-air furnaces.
CS 111–43 Earthenware (vitreous-glazed) plumbing fixtures.
CS 113–63 Oil-burning floor furnaces equipped with vaporizing pot-type burners.
CS 128–52 Men's sport shirt sizes—woven fabrics (other than those marked with regular neckband sizes).
CS 129–47 Materials for safety wearing apparel.
CS 131–46 Industrial mineral wool products, all types—testing and reporting.
CS 134–46 Cast aluminum cooking utensils (metal composition).
CS 135–46 Men's shirt sizes (exclusive of of work shirts).
CS 145–47 Testing and rating hand-fired hot water supply boilers.
CS 152–48 Copper naphthenate wood preservative (spray, brush, dip applications).
CS 158–49 Model forms for girls' apparel.
CS–165–50 Zinc naphthenate wood preservative (spray, brush, dip applications).
CS 174–41 140-F drycleaning solvent.
CS 177–62 Bituminous-coated metal septic tanks (residential).
CS 178–51 Testing and rating ventilating fans (axial and propeller types).
CS 180–52 Model forms for boys' apparel.
CS 183–51 Boys' trouser size measurements.
CS 185–52 Wool felt.
CS 186–52 Boys' sport outerwear size measurements.
CS 195–60 Warm-air furnace burner units equipped with pressure-atomizing or rotary type oil burners.
CS 196–55 Model forms for toddlers' and children's apparel.
CS 198–55 Infants', children's, girls' and boys' knit underwear (exclusive of rayon, acetate, and nylon).
CS 216–58 Asphalt insulating siding.
CS 235–61 Pressure treated wood fence posts (with oil-type preservatives).
CS 249–62 Pressure-treated Douglas fir marine piles.
CS 250–62 Pressure-treated southern pine marine piles.
CS 271–65 Grading of abrasive grain for grinding wheels.
SPR 17–47 Heavy forged hand tools.
SPR 44–49 Boxboard thicknesses.
SPR 60–55 Machine, carriage and lag bolts, and nuts (case quantity and gross weight).
SPR 72–27 Solid section steel windows.
SPR 77–45 Hickory handles.
SPR 100–47 Welded chain.
SPR 125–31 Waxed tissue paper.
SPR 136–32 Flax and hemp twine.
SPR 147–42 Wire diameters for mineral aggregate production screens.
SPR 157–50 Steel firebox boilers and steel heating boilers (commercial and residential).
SPR 168–37 Braided shoe laces.
SPR 180–41 Copper conductors for building purposes.
SPR 183–46 Brass or bronze valves (gate, globe, angle, and check).
SPR 184–47 Iron valves (gate, globe, angle, and check).
SPR 185–47 Pipe fittings (gray cast-iron, malleable iron, and brass or bronze).
SPR 190–42 Stove pipe and accessories.
SPR 198–50 Wire rope.
SPR 207–60 Pipes, ducts and fittings for warm air heating and air-conditioning systems.
SPR 214–55 Metal-cutting band saws (hard edge flexible back).
SPR 220–46 Open-end and box wrenches.
SPR 227–47 Plumbing fixture fittings and trim for housing.
SPR 229–63 Vises (machinists' and other bench-mounted vises).
SPR 238–50 Convectors.
SPR 245–51 Weldless chain and chain products.
SPR 259–56 Hexagon-head cap screws (case quantity and gross weight).

Public notice of the intention to withdraw these standards was published in the FEDERAL REGISTER on June 21, 1972 (37 F.R. 12248), and a 45-day period was provided for the submission of comments or objections concerning the proposed withdrawal of any of these standards. No valid objections to the withdrawal of any of these standards have been received by the National Bureau of Standards.

→ The effective date for the withdrawal of these standards will be 60 days after the publication of this notice. This withdrawal action terminates the authority to refer to these standards as voluntary product standards developed under the Department of Commerce Procedures.

LAWRENCE M. KUSHNER,
Acting Director.

AUGUST 18, 1972.

[FR Doc.72-14465 Filed 8-23-72;8:57 am]

COMMERCIAL STANDARD **CS 271-65**

Supersedes SPR R118-50

Grading of Abrasive Grain For Grinding Wheels

A recorded voluntary standard of the trade published by the U.S. Department of Commerce

For sale by the Superintendent of Documents
U.S. Government Printing Office, Washington, D.C., 20402 - Price 10 cents

September 1965

E R R A T A

COMMERCIAL STANDARD CS271-65

GRADING OF ABRASIVE GRAIN FOR GRINDING WHEELS

(Insert in printed copies of the standard)

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1. Page 4. Table 1. - Change the size of the opening of the following control sieves:

   No. 25 from .0280 in. to .0278 in.

   No. 30 from .0232 in. to .0234 in.

   No. 45 from .0138 in. to .0139 in.

   No. 50 from .0017 in. to .0117 in.

2. Page 5. Table 2. - Change the size of the opening of the following control sieves:

   No. 18 from .0331 in. to .0394 in.

   No. 20 from .0280 in. to .0331 in.

   No. 25 from .0232 in. to .0278 in.

   No. 45 from .0138 in. to .0139 in.

Office of Commodity Standards
National Bureau of Standards
U. S. Department of Commerce

US COMM-NBS-DC

U.S. DEPARTMENT OF COMMERCE

NATIONAL BUREAU OF STANDARDS

Office of Commodity Standards

EFFECTIVE DATE

Having been passed through the regular procedures of the Office of Commodity Standards (formerly the Commodity Standards Division, Office of Technical Services; transferred to the National Bureau of Standards July 1, 1963), and approved by the acceptors hereinafter listed, this Commercial Standard is issued by the U.S. Department of Commerce, effective April 12, 1965.

JOHN T. CONNOR, *Secretary.*

COMMERCIAL STANDARDS

Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Office of Commodity Standards of the National Bureau of Standards. Their purpose is to establish quality criteria, standard methods of test, rating, certification, and labeling of manufactured commodities, and to provide uniform bases for fair competition.

The adoption and use of a Commerial Standard is voluntary. However, when reference to a Commercial Standard is made in contracts, labels, invoices, or advertising literature, the provisions of the standard are enforcible through usual legal channels as a part of the sales contract.

Commercial Standards originate with the proponent industry. The sponsors may be manufacturers, distributors, or users of the specific product. One of these three elements of industry submits to the Office of Commodity Standards the necessary data to be used as the basis for developing a standard of practice. The Office by means of assembled conferences or letter referenda, or both, assists the sponsor group in arriving at a tentative standard of practice and thereafter refers it to the other elements of the same industry for approval or for constructive criticism that will be helpful in making any necessary adjustments. The regular procedure of the Office assures continuous servicing of each Commercial Standard through review and revision whenever, in the opinion of the industry, changing conditions warrant such action.

SIMPLIFIED PRACTICE RECOMMENDATIONS

Under a similar procedure the Office of Commodity Standards cooperates with industries in the establishment of Simplified Practice Recommendations. Their purpose is to eliminate avoidable waste through the establishment of standards of practice for sizes, dimensions, varieties or other characteristics of specific products; to simplify packaging practices; and to establish simplified methods of performing specific tasks.

The initial printing of this Commercial Standard was made possible through the cooperation of the Abrasive Grain Association.

Reprinted With Corrections, February 1967

Grading of Abrasive Grain for Grinding Wheels

(Effective April 12, 1965)

1. PURPOSE

1.1 The purpose of this Commercial Standard is to establish a nationally recognized standard for the sizing of abrasive grain for use in the manufacture of grinding wheels, and for general polishing, pressure blasting, and lithoplate graining.[1] It is intended to serve as a common basis of understanding for abrasive grain producers, and for the manufacturers, distributors, and users of these abrasive products.

2. SCOPE AND DEFINITION

2.1 **Scope**—This Standard sets forth the grit size designations, the size limits and the sieves used in determining them, as well as the test procedure which is used by industry in classifying abrasive grain by its dimensions. A uniform means of indicating compliance with the Standard is also given. The history of the development of the Standard, and the roster of a Standing Committee of the industry to keep the Standard current is included, as well as a list of the organizations which participated in the establishment of the Standard.

2.2 **Definition**—Abrasive grain is a natural or manufactured substance that is reduced by crushing to specific grit sizes, and is then made into products which are used for removing extraneous material by grinding, polishing, lapping, etc. Examples of some of the natural materials are corundum, emery, and garnet; the manufactured materials are fused aluminum oxide and silicon carbide.

3. STANDARD GRADING LIMITS

3.1 **General**—The standard grit sizes and allowable limits for each size of abrasive grain labeled, designated, or otherwise represented as complying with this Commercial Standard are given in table 1 and table 2 as determined in accordance with the test methods specified in section 4 herein.

3.2 **Standard grit sizes of aluminum-oxide and silicon carbide abrasives**—Table 1 lists the allowable grading limits for the sizing of aluminum-oxide and silicon carbide abrasive grain for use in the

[1] The grading of abrasive grain for coated abrasives is covered in Commercial Standard CS217, and the grading of diamond powder is covered in Commercial Standards CS123 and CS261. Copies of the latest editions of these Commercial Standards are obtainable from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

manufacturing of grinding wheels and for general polishing purposes. The allowable limits set forth in the table are based on the shaking of a 100±5.0 gram sample for 10 minutes on a Ro-Tap [2] machine operating at a speed of approximately 290 rpm and 156 taps per minute. Where more than a single sieve is used they shall be agitated simultaneously.

3.2.1 **Example of use of table 1**—The following is an example of the use of this Standard: Taking grit No. 10, all material must pass through the coarsest sieve—in this case the No. 6. Through the next coarsest sieve, termed the "control sieve"—in this case the No. 8—all material may pass, but not more than 15 percent may be retained on it. At least 45 percent must be retained on the No. 10 sieve, but it is permissible to have 100 percent pass through No. 8, the control sieve, and remain on No. 10 sieve, the requirement being that the grain passing through No. 8, the control sieve, and retained on No. 10 and No. 12 must add to at least 80 percent. Consequently, if 45 percent was retained on No. 10 sieve, then at least 35 percent must be retained on the No. 12 sieve. There is no requirement for material retained on the finest sieve—in this case the No. 14 sieve—but not more than 3 percent is permitted to pass through the No. 14 sieve.

TABLE 1.—*Allowable limits for the sizing of aluminum-oxide and silicon carbide abrasive grain for grinding wheel manufacture and general polishing purposes.*[1]

Grit No.	Sieve through which 100% must pass	Control sieve		Maximum of oversize on control sieve [2]	Minimum through control sieve and retained		Cumulative minimum through control sieve and retained		Maximum of 3 % through sieve No.
		No.	Opening inches	Percent	Percent	On sieve No.	Percent	On sieve No.	
8	5	7	0.111	15	45	8	80	8 and 10	12
10	6	8	.0937	15	45	10	80	10 and 12	14
12	7	10	.0787	15	45	12	80	12 and 14	16
14	8	12	.0661	15	45	14	80	14 and 16	18
16	10	14	.0555	15	45	16	80	16 and 18	20
20	12	16	.0469	15	45	18	80	18 and 20	25
24	16	20	.0331	25	45	25	70	25 and 30	35
30	18	25	.0278	25	45	30	70	30 and 35	40
36	20	30	.0234	25	45	35	70	35 and 40	45
46	30	40	.0165	10–30	40	45	65	45 and 50	60
54	35	45	.0139	10–30	40	50	65	50 and 60	70
60	40	50	.0117	10–30	40	60	65	60 and 70	80
70	45	60	.0098	15	45	70	70	70 and 80	100
80	50	70	.0083	25	40	80	65	80 and 100	120
90	60	80	.0070	15	40	100	70	100 and 120	140
100	70	100	.0059	15	40	120	65	120 and 140	200
120	80	120	.0049	15	30	140	60	140 and 170	230
150	100	140	.0041	15	40	170 and 200	75	170, 200 and 230	325
180	120	170	.0035	15	40	200 and 230	65	200, 230 and 270	
220	140	200	.0029	15	40	230 and 270	60	230, 270 and 325	
240	170	200	.0029	5	8	230 and 270	38	230, 270 and 325	

[1] The sieves referred to are those of the United States Standard Sieve Series, described in table 3, which have been certified to be in conformance with the Abrasive Grain Association Master Sieves. (Information on the AGA Master Sieves can be obtained from the Abrasive Grain Association, 2130 Keith Building, Cleveland, Ohio, 44115).

[2] In grit Nos. 46, 54, and 60, the oversize may range from a minimum of 10 percent to a maximum of 30 percent.

[2] Source of Ro-Tap testing sieve shaking machines is available by writing to the Abrasive Grain Association, 2130 Keith Bldg., Cleveland, Ohio, 44115.

3.3 **Standard grit sizes for all abrasive grains for use in pressure blasting and lithoplate graining**—Table 2 lists the allowable grading limits for the sizing of all abrasive grains for use in pressure blasting and lithoplate graining. The allowable limits set forth in the table are based on the shaking of a 100±5.0 gram sample for 10 minutes on a Ro-Tap machine [2] operating at a speed of approximately 290 rpm and 156 taps per minute. Where more than a single sieve is used they shall be agitated simultaneously.

TABLE 2.—*Allowable limits for the sizing of abrasive grains for use in pressure blasting and lithoplate graining.*[1]

Grit No.	Sieve through which 100% must pass	Control sieve		Maximum of oversize on control sieve	Minimum through control sieve and retained		Cumulative minimum through control sieve and retained		Maximum of 5% through sieve No.
		No.	Opening inch	Percent	Percent	On sieve No.	Percent	On sieve No.	
20	10	16	0.0469	25	35	18	70	18 and 20	30
24	14	18	.0394	25	35	20	60	20 and 25	40
30	16	20	.0331	30	45	30	60	30 and 35	45
36	18	25	.0278	15	50	35	80	35 and 40	50
46	25	40	.0165	30	30	45	55	45 and 50	70
54	30	45	.0139	35	25	50	60	50 and 60	80
60	35	50	.0117	35	35	60	60	60 and 70	100
70	40	60	.0098	25	35	70	65	70 and 80	120
80	45	70	.0083	35	30	80	60	80 and 100	140
90	50	80	.0070	25	35	100	60	100 and 120	170
100	60	100	.0059	25	30	120	55	120 and 140	230
120	70	120	.0049	25	20	140	50	140 and 170	270
150	80	140	.0041	25	30	170 and 200	60	170, 200 and 230	325
180	80	170	.0035	20	30	200 and 230	60	200, 230 and 270	--------
220	100	200	.0029	15	30	230 and 270	50	230, 270 and 325	--------
240	120	200	.0029	10	5	230 and 270	30	230, 270 and 325	--------

[1] The sieves referred to are those of the United States Standard Sieve Series, described in table 3, which have been certified to be in conformance with the Abrasive Grain Association Master Sieves. (Information on the AGA Master Sieves can be obtained from the Abrasive Grain Association, 2130 Keith Building, Cleveland, Ohio, 44115.)

4. TEST PROCEDURE

4.1 **Scope**—This test is designed for use in determining the particle size distribution of abrasive grain.

4.2 **Apparatus**—The apparatus used in this test consists of a group of sieves, a sieve shaker, a sample splitter, a balance, and a timer.

Sieve Shaker—It is preferred that a standard Ro-Tap testing sieve shaker be used in this test because the limits set forth in table 1 and table 2 were based on the use of this machine. This apparatus operates at a speed of approximately 290 revolutions per minute (rpm) and 156 taps per minute. It should be equipped with a sieve supporting plate on which the sieves rest.

Sieves—Standard eight inch diameter brass frame nested sieves, either half or full height, should be used. A cover and a pan are required. These sieves shall conform to the latest edition of ASTM Standard E–11, Specifications for Sieves for Testing Purposes (Wire Cloth Sieves, Round-Hole and Square-Hole Plate Screens or Sieves)[3] which are described in table 3, and shall be certified to

[2] See footnote on p. 4.
[3] Copies of standards of the American Society for Testing and Materials are available from the Society's offices at 1916 Race St., Philadelphia, Pa., 19103.

TABLE 3.—*Test sieve specifications* [1]

Sieve designation		Nominal sieve opening		Nominal wire diameter	
Standard	Alternate No.	mm	In. (approx. equivalents)	mm	In. (approx. equivalents)
4.00 mm [2]	5	4.00	0.157	1.37	0.0539
3.36 mm	6	3.36	.132	1.23	.0484
2.83 mm [2]	7	2.83	.111	1.10	.0430
2.38 mm	8	2.38	.0937	1.00	.0394
2.00 mm [2]	10	2.00	.0787	0.900	.0354
1.68 mm	12	1.68	.0661	.810	.0319
1.41 mm [2]	14	1.41	.0555	.725	.0285
1.19 mm	16	1.19	.0469	.650	.0256
1.00 mm [2]	18	1.00	.0394	.580	.0228
841 micron	20	0.841	.0331	.510	.0201
707 micron [2]	25	.707	.0278	.450	.0177
595 micron	30	.595	.0234	.390	.0154
500 micron [2]	35	.500	.0197	.340	.0134
420 micron	40	.420	.0165	.290	.0114
354 micron [2]	45	.354	.0139	.247	.0097
297 micron	50	.297	.0117	.215	.0085
250 micron [2]	60	.250	.0098	.180	.0071
210 micron	70	.210	.0083	.152	.0060
177 micron [2]	80	.177	.0070	.131	.0052
149 micron	100	.149	.0059	.110	.0043
125 micron [2]	120	.125	.0049	.091	.0036
105 micron	140	.105	.0041	.076	.0030
88 micron [2]	170	.088	.0035	.064	.0025
74 micron	200	.074	.0029	.053	.0021
63 micron [2]	230	.063	.0025	.044	.0017
53 micron	270	.053	.0021	.037	.0015
44 micron [2]	325	.044	.0017	.030	.0012

[1] The sieves referred to above are those of the United States Standard Sieve Series (ASTM E-11).
[2] These sieves correspond to those proposed as an International (ISO) Standard. It is recommended that wherever possible these sieves be included in all sieve analysis data or reports intended for international publication.

match a set of Standard Abrasive Grain Association Master Control Sieves.[4]

Sample Splitter—A sample splitter which will produce a representative sample should be used. Any commercially available device is acceptable.

Balance—A standard laboratory balance should be employed which has a sensitivity of at least 0.1 grams.

Timer—A suitable laboratory timer with an accuracy of ±5.0 seconds is satisfactory for this test.

4.3 **Procedure**—The following procedure should be employed in obtaining a sieve size analysis as specified in tables 1 and 2 for the applicable type and grit size of abrasive grain.

4.3.1 **Sample**—The sample to be tested should be blended and quartered utilizing a mechanical sample splitter so as to obtain a representative sample weighing 100 grams ±5.0 grams. Weigh the sample to the nearest 0.1 gram.

4.3.2 **Sieves**—The desired nest of sieves is assembled in order of mesh size with the coarsest sieve on the top, progressing to the finest with a pan on the bottom. The test sample is poured, a cover is placed on the top sieve, and the entire unit placed in the sieve shaker.

[4] Abrasive Grain Association's matched sieves conform to all requirements of ASTM E-11 and are specially selected by test to closely duplicate results obtained on a set of Standard AGA Master Control Sieves. Variations in performance between sets of AGA matched sieves is less than that encountered in use between sets of sieves certified as conforming only to ASTM's E-11.

4.3.3 **Sieving**—The timer controlling the sieve shaker is set for ten minutes and turned on. At the completion of the cycle, the nest of sieves is removed from the shaker. Beginning with the top (coarsest) sieve, empty the portion of the grain retained onto a clean piece of paper. Invert the sieve on the paper. Brush the underside of the sieve with a soft brass wire brush on sieves coarser than 100 mesh and with a hair brush on sieves finer than 100 mesh using gentle strokes to remove all of the particles imbedded in the sieve. Care should be taken not to damage the sieve cloth. The frame of the sieve may be tapped lightly with the handle of the brush to aid in particle removal. Repeat procedure for each sieve utilized in the test.

4.3.4 **Weighing the sieve fractions**—The grain obtained from each sieve should be transferred to the balance pan and weighed to the nearest 0.1 gram. If the sum of the weights of all of the fractions, i.e., the material retained on each sieve and the pan, is less than 99% of the weight of the total sample, the above procedure should be repeated on a new sample.

4.4 **Calculation of Results**—Calculate the percentage retained on each sieve, including the pan, relative to the initial weight of the sample.

5. CERTIFICATION

5.1 In order to assure the purchaser of abrasive grain that he is getting products which are quality controlled to conform to the grading requirements of this Commercial Standard, producers of the grain are urged individually, or in concert with their trade associations, or testing laboratories, to grade mark and certify each grit size complying herewith, by stamp, brand or label. The following uniform certification statement is recommended for the label:

> "The grit size of this abrasive grain complies with all the grading requirements of Commercial Standard CS271–65, as developed by the trade under the Commodity Standards Procedure of the U.S. Department of Commerce.
>
> _____ _____
>
> Grit size and abrasive Name of Manufacturer"

5.1.1 Where space does not permit the use of the full certification statement the following will suffice:

> "Grit size complies with CS271–65 of the U.S. Department of Commerce.
>
> _____
>
> Name or trade mark of manufacturer"

HISTORY OF PROJECT

The early editions of this standard were issued under the Simplified Practice Recommendation series of the Department. The first edition, designated R118–30, relates the early history of grain size standardization and summarizes the developments leading to the approval of this simplification program by a general conference of all interests held in May 1930.

Subsequent editions issued in 1936, 1940, 1945, and 1950 each describe the changes necessary to keep the standard abreast of the times.

CURRENT REVISION

On May 29, 1963 the Abrasive Grain Association requested a revision of Simplified Practice Recommendation R118–50 which enlarged the scope of the standard to include requirements for the sizing limits of each grit size and the methods of test by sieving for determining conformance. For these reasons it was converted into the Commercial Standard series. After technical review by the NBS, it was approved by the Standing Committee of grain manufacturers and users. A Recommended Commercial Standard designated TS–5663, Grading of Abrasive Grain for Grinding Wheels, was circulated on October 21, 1964, to a comprehensive list of grain producers and to grinding wheel and other abrasive product manufacturers, distributors, and users for consideration and approval. The circulation was also announced in the trade press.

Approvals were subsequently submitted as signed statements of acceptance voluntarily returned by the individual firms and other organizations listed herein. The list covered the various elements of the industry and was considered to be broadly representative of all concerned. Some editorial adjustments were made as a result of suggestions received.

The publication of the new Commercial Standard, CS271–65 for Grading of Abrasive Grain for Grinding Wheels, was announced on March 12, 1965, to become effective for new production on April 12, 1965.

Project Manager: Wm. H. Furcolow, Office of Commodity Standards, National Bureau of Standards, U.S. Department of Commerce, Washington, D.C., 20234.

Technical Adviser: Richard K. Kirby, Physicist, Metrology Division, National Bureau of Standards, U.S. Department of Commerce, Washington, D.C., 20234.

STANDING COMMITTEE

The following individuals comprise the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee or to the Office of Commodity Standards, U.S. Department of Commerce which acts as Secretary for the committee.

Representing grain producers:

W. L. Kenagy, Vice Pres., Simonds Abrasive Co., James and Fraley Sts., Philadelphia, Pa., 19137 (Chairman)

Bruce Walker, Electro Minerals Div., The Carborundum Co., Buffalo Ave., Niagara Falls, N.Y., 14302

M. W. Greene, Superintendent, Crushing Plant, Norton Co., New Bond St., Worcester, Mass., 01606

Representing grain users:

J. Y. Arnold, The Carpenter Steel Co., 101 West Bern Street, Reading, Pa., 19603

James R. Gilman, Bay State Abrasive Products Co., Union St., Westboro, Mass.

C. E. Miner, Grain Div., Mid-West Abrasive Co., 510 So. Washington St., Owosso, Michigan, 48867

Representing grain distributors:

Theodore T. Klos, Universal Shellac and Supply Co., 540 Irving Ave., Brooklyn, New York, 11227

(Two other distributors invited to name representatives.)

ACCEPTORS

The manufacturers, distributors, users, and others listed below have individually indicated in writing their acceptance of this Commercial Standard prior to its publication. The acceptances indicate an intention to utilize the Standard as far as practicable, but reserve the right to depart from it as may be deemed desirable. The list is published to show the extent to recorded public support for the Standard, and should not be construed as indicating that all products made by the acceptors actually comply with its requirements.

Products that meet all requirements of the standard may be identified as such by a certificate, grade mark, or label. Purchasers are encouraged to require such specific representations of compliance, which may be given by the manufacturer whether or not he is listed as an acceptor.

ASSOCIATIONS
(General Support)

Abrasive Grain Association, Cleveland, Ohio
American Society for Abrasive Methods, Chicago, Ill.
American Society of Tool and Manufacturing Engineers, Dearborn, Mich.
Cemented Carbide Products Association, Cleveland Ohio
Diamond Wheel Manufacturers Institute, Cleveland Ohio
Grinding Wheel Institute, Cleveland, Ohio
Industrial Diamond Association of America, Inc., New York, N.Y.
Southern Industrial Distributors' Association, Atlanta, Ga.

FIRMS AND OTHER INTERESTS

Abrasive Machine & Supply Co., Newark, N.J.
Abrasive Materials, Inc., Hillsdale Mich.
Abrasives & Tool, Inc., Auburn Mass.
Acme Abrasive Co., Warren, Mich.
Acroscope Engineering, Inc., Los Angeles, Calif.
Action Diamond Tool Co., Inc., Minneapolis., Minn.
Albertson & Co., Inc., Sioux City, Iowa
Allison-Campbell Division, American Chain & Cable Co., Inc., Bridgeport, Conn.
Amarillo Hardware Co., Amarillo, Tex.
American Abrasive Co., Westfield, Mass.
American Emery Wheel Works, Providence, R.I.
American Graded Sand Co., Chicago, Ill.
American Optical Co., Southbridge, Mass.
American Standards Testing Bureau, Inc., New York, N.Y.
Arolox, Inc., Ypsilanti, Mich.
Atlantic Abrasive Corp., So. Braintree, Mass.
Babcock Hinds & Underwood, Inc., Binghamton, N.Y.
Bancroft, Frank, Co., Inc., Dearborn, Mich.
Barton Mines Corp., North Creek, N.Y.
Bates Abrasive Products, Inc., Chicago, Ill.
Bay State Abrasive Products Co., Westboro, Mass.
Behn, H. J., & Co., Inc., Fairfield, Conn.
Behr-Manning, Division of Norton Co., Troy, N.Y.
Berkshire Mill Supply Co., Pittsfield, Mass.
Blake, Geo. F., Inc., Worcester, Mass.
Blanchard, Fred, K., Inc., Troy, N.Y.
Bostwick Braun Co., Toledo, Ohio
Bower Roller Bearing Division, Federal-Mogul-Bower Bearings, Inc., Detroit, Mich.
Boyd Supply Co., Inc. Clifton Heights, Pa.
Brammall Supply Co., Benton Harbor, Mich.
Bruce Products Corp., Howell, Mich.
Buckeye Abrasive, Inc., Barberton, Ohio
Bullard, Geo. H., Co., Inc., Westboro, Mass.
Cabot Corp., Boston, Mass.
Carbide Products Company, Huntington Park, Calif.
Carborundum Co., Bonded, and Electro Minerals Divisions, Niagara Falls, N.Y.
Carey Machinery & Supply Co., Inc., Baltimore, Md.
Carolina Rubber & Supply Co., New Bern, N.C.
Carpenter Steel Co., Reading, Pa.
Central Tool Supply Co., Battle Creek, Mich.
Chayes Dental Instrument Corp., Danbury Conn.
Checker Motors Corp, Kalamazoo, Mich.
Chicago & Eastern Illinois Railroad Co., Danville, Ill.
Chicago Wheel & Manufacturing Co., Chicago, Ill.
Cincinnati Milling & Grinding Machines, Inc., Cincinnati, Ohio
Clark Witbeck Co., Schenectady, N.Y.
Cleveland Tool & Supply Co., Cleveland, Ohio
Cleveland Twist Drill Co., Cleveland, Ohio
Colcord-Wright Machinery & Supply Co., St. Louis, Mo.
Colonial Hardware Co., New York, N.Y.
Commercial Grinding Wheel Co., Chicago, Ill.
Continental Mineral Processing Corp., Cincinnati, Ohio
Corbin Supply Co., Macon, Ga.
Cratex Manufacturing Co., Inc., Burlingame, Calif.
Danser Hardware & Supply Co., Weston W. Va.
Davenport Abrasives Corp., Rockland, Mass.
Dayton Industrial Supply Co., Dayton, Ohio
Dayton Safety Grinding Wheel Division, Simonds Worden White Co., Subdivision H. K. Porter Co., Inc., Dayton, Ohio
de Sanno, A.P., & Son, Inc., Phoenixville, Pa.
Desmond Stephan Manufacturing Co. Urbana, Ohio
Detroit Edison Co., Detroit, Mich.
Diacraft, Inc., Detroit, Mich.
Diamond Dust Co., Inc., Mineoloa, N.Y.
Diamond Specialty & Supply Co., Philadelphia, Pa.
Ducommum Metals & Supply Co., Los Angeles, Calif.
Eagle Grinding Wheel Corp., Chicago, Ill.
Edmar Abrasive Co., Andalusia, Pa.
Edwards & Walker Co., Portland Maine.
Electro Refractories & Abrasives Corp., Buffalo, N.Y.
Elifeldt, Fred A., Co., Kansas City, Mo.
Enderes, Inc., Albert Lea, Minn.
Engis Equipment Co., Morton Grove, Ill.
Ensworth & Son., Inc., Hartford, Conn.
Erie Manufacturing & Supply Corp. Erie, Pa.
Exolon Co., Tonawanda, N.Y.
Faeth Co., Kansas City, Mo.
Federal Supply Corp., Paterson, N.J.
Fisher Abrasive Products Corp., Brighton, Mich.

Fisher Bros. Co., Astoria, Oreg.
Florida East Coast Railway Co., St. Augustine, Fla.
Florida, University of, Department of Metallurgical and Materials Engineering, Gainesville, Fla.
Froehling & Robertson, Inc., Richmond, Va.
Fuller Merriam Co., West Haven, Conn.
Galey Hardware Co., Inc., Chester, Pa.
Gastonia Mill Supply Co., Gastonia, N.C.
General Abrasive Co., Inc., Niagara Falls, N.Y.
General Grinding Wheel Corp., Carlisle, Pa.
Gerard Kluyskens, New York, N.Y.
Glick Supply Co., Marshalltown, Iowa
Globe Machinery and Supply Co., Des Moines, Iowa
Gondras Corp., Miami, Fla.
Grand Rapids Supply Co., Grand Rapids, Mich.
Gransden-Hall & Co., Flint, Mich.
Greenlee Diamond Tool Co., Chicago, Ill.
Hackensack Specialty Manufacturing Co., Hackensack, N.J.
Hamilton Emery & Corundum Co., Chester, Mass.
Hamilton Watch Co., Lancaster, Pa.
Harper Supply Co., Jackson, Miss.
Harris, Samuel & Co., Chicago, Ill.
Heller, J. & Sons, Newark, N.J.
Hoffman Brothers Drilling Co., Inc., Punxsutawney, Pa.
Hornsby Heavy Hardware, Inc., Wichita Falls, Tex.
Hoskins Manufacturing Co., Detroit, Mich.
Hy-Pro Tool Co., New Bedford, Mass.
Iding, M. P., Disc Grinding Compound Co., Inc., Milwaukee, Wis.
Industrial Equipment Corp., Springfield, Mo.
Industrial Supply Co., Inc., Frankfort, Ky.
Internal Grinding Abrasives, Inc., Grand Rapids, Mich.
International Abrasive Corp., Clifton, N.J.
International Harvester Co., Chicago, Ill.
Kasco Abrasives, Inc., Los Angeles, Calif.
Klem Supply, Inc., Elkhart, Ind.
Lakeshore Machinery & Supply Co., Muskegon, Mich.
Lee Hardware Co., Salina, Kans.
Lewis Supply Co., Inc., Memphis, Tenn.
Long Lewis Hardware Co., Birmingham, Ala.
Louis, A., Supply Co., Ashtabula, Ohio
Lubbock Hardware & Supply Co., Inc., Lubbock, Tex.
Madsen & Howell, Inc., Perth Amboy, N.J.
McCreath, Andrew S., & Son., Inc., Harrisburg, Pa.
Mark Twain Supply Co., Hannibal, Mo.
Marlin-Rockwell Co., Div. Thompson, Ramo, Wooldridge Co., Jamestown, N.Y.
Mechanical Supplies Co., Cincinnati, Ohio
Meyers W. F., Co., Inc., Bedford, Ind.
Mid-States Industrial Corp., Rockford, Ill.
Mid-West Abrasive Co., Owosso, Mich.
Millers Falls Co., Greenfield, Mass.
Miller Hardware Co., Inc., Jersey City, N.J.
Mine & Smelter Supply Co., Denver, Colo.
National Diamond Laboratory, Inc., Peekskill, N.Y.
National Grinding Wheel Co., Inc., North Tonawanda, N.Y.
New Jersey Engineering & Supply Co., Passaic, N.J.
New Process Gear, Division of Chrysler Corp., East Syracuse, N.Y.
Newark Wire Cloth Co., Newark, N.J.
Nolvex File Co., Cleveland, Ohio
Norton Co., Worcester, Mass.
Osborn Manufacturing Co., Cleveland, Ohio
Pacific Grinding Wheel Manufacturing Co., Inc., Everett, Wash.
Patzig Testing Laboratories, Inc., Des Moines, Iowa
Peninsular Grinding Wheel Co., Detroit, Mich.
Penn General Supply Co., Pittsburgh, Pa.
Penn Scientific Products Co., Inc., Abington, Pa.
Pennsylvania and West Virginia Supply Corp., Wheeling, W. Va.
Percival Steel & Supply Co., Los Angeles, Calif.
Perry Mill Supply Co. Erie, Pa.
Persinger Supply Co., Williamson, W. Va.
Pidgeon-Thomas Iron Co., Memphis, Tenn.
Precision Carbide Co., Paterson, N.J.
Precision Grinding Wheel Co., Philadelphia, Pa.
Precision Scientific Co., Chicago, Ill.
Pullman Co., Chicago, Ill.
Ramsdell Industrial Supply Co., Worcester, Mass.
Raniville, F., Co., Grand Rapids, Mich.
Reading Machine & Tool Co., Reading, Pa.
Red Hill Grinding Wheel Corp., Pennsburg, Pa.
Reichle Supply Co., Saginaw, Mich.
Reid Bros., Co., Inc., Beverly, Mass.
Reynolds, W. L., Co., Baltimore, Md.
Rhen Co. Detroit, Mich.
Riechman Crosby Hays Co., Memphis, Tenn.
Riel Hardware and Mill Supply, Inc., Springfield, Mass.
Rockford Tool & Transmission Co., Rockford, Ill.
Roper, George D., Corp., Bradley Division, Bradley, Ill.
Ross-Frazer Supply Co., St. Joseph, Mo.
Roux Wire Die Works, Inc. Oriskany, N.Y.
Sager-Spuck Supply Co., Inc., Albany, N.Y.
Shilstone Testing Laboratory, Inc., New Orleans, La.
Simonds Abrasive Co., Philadelphia, Pa.
Simonds Canada Saw Co., Ltd., Grinding Wheel Division, Bockville, Ontario, Canada
SKF Industries, Inc., Timonium, Md.
Sligo, Inc., St. Louis, Mo.
Smith & Klebes, Inc., New Britain, Conn.
Smith, W. H., Hardware Co., Parkersburg, W. Va.
Southern Railway Supply Co., Inc., Richmond, Va.
Squier, Schilling & Skiff, Newark, N.J.
Standard-Machinists Supply Co., Pittsburgh, Pa.
Stangel, J. J., Hardware Co., Manitowac, Wis.
Sterling Grinding Wheel Co., Subsidiary of Wake field Corp., Tiffin, Ohio
Sturtevant Mill Co., Boston, Mass.
Super-Cut, Inc., Chicago, Ill.
Syracuse Supply Co., Syracuse N.Y.
Taylor Parker Co., Inc., Norfolk, Va.
Tennessee Central Railway Co., Nashville, Tenn.
Tennessee Mill & Mine Supply Co., Knoxville, Tenn.
Thompson Grinder Co., Springfield, Ohio
Thomson-Diggs Co., Sacramento, Calif.
Toledo Abrasive & Supply Co., Toledo, Ohio
Tube Turns, A Division of Chemetron Corp., Louisville, Ky.
Tyler, W. S., Co., Cleveland, Ohio
United Abrasive Grain Co., Quinnesec, Mich.
United States Testing Co., Hoboken, N.J.
Universal Shallac & Supply Co., Brooklyn, N.Y.
Valley Electric Corp., St. Louis, Mo.
Van Horn, Oliver H. Inc., Baton Rouge, La.
Waltham Grinding Wheel Co., Waltham, Mass.
Warren Diamond Powder Co., College Point, N.Y.
Washington Mills Abrasive Co., North Grafton, Mass.
Wedron Silica Co., Chicago, Ill.
Western Metal Supply Co., San Diego, Calif.
Westfield Grinding Wheel Co., Westfield, Mass.
Westmoreland Hardware Co., Greensburg, Pa.
Wheel Trueing Tool Co., Detroit, Mich.
White Motor Co., Autocar Division, Exton, Pa.
Whittaker Clark & Daniels, Inc., New York, N.Y.

Wiley-Hughes Supply Co., Trenton, N.J.
Winter Hardware Co., Billings, Mont.
Woodward Wight & Co., Ltd., New Orleans, La.
York Machinery & Supply Co., York, Pa.

U.S. GOVERNMENT AGENCIES

Air Force, Department of, Materials Branch, Service Engineering Division (MONEB) MOAMA, Brookley, AFB, Ala. and Materials Laboratory (MATF) Wright-Patterson AFB, Ohio
Defense Industrial Supply Center, Philadelphia, Pa.
District of Columbia Government, Procurement Office, Washington, D.C.
General Services Administration, FSS Standardization Division, Washington, D.C.
Interior, Department of, Washington, D.C.
Treasury, Department of, Customs Laboratory, Baltimore, Md.
Veterans Administration, Washington, D.C.

ACCEPTANCE OF COMMERCIAL STANDARD

CS271-65 Grading of Abrasive Grain for Grinding Wheels

If acceptance has not previously been filed, this sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this Commercial Standard.

Date

Office of Commodity Standards
National Bureau of Standards
U.S. Department of Commerce
Washington, D.C. 20234

Gentlemen:

We believe that this Commercial Standard constitutes a useful standard of practice, and we individually plan to utilize it as far as practicable in the

production [1] distribution [1] purchase [1] other [1]

of this commodity.

We reserve the right to depart from the standard as we deem advisable.

We understand, of course, that only those articles which actually comply with the standard in all respects can be identified or labeled as conforming thereto.

Signature of authorized officer_____
(In ink)

_____

(Kindly typewrite or print the following lines)

Name and title of above officer_____

Organization_____
(Fill in exactly as it should be listed)

Street address_____

City, zone, and State_____

(Cut on this line)

[1] Underscore the applicable words. Please see that separate acceptances are filed for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests, trade association, trade papers, etc., desiring to record their general support, the words "General Support" should be added after the signature.

TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—Commercial Standards are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. *The acceptor's responsibility.*—The purpose of Commercial standards is to establish, for specific commodities, nationally recognized grades or consumer criteria, and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the standard, where practicable, in the production, distribution, or consumption of the article in question.

3. *The Department's responsibility.*—The major function, performed by the Department of Commerce in the voluntary establishment of Commercial Standards on a nationwide basis is fourfold: First, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation.*—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active, valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or of the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

OTHER COMMERCIAL STANDARDS

A list of Commercial Standards may be obtained from the Office of Commodity Standards, National Bureau of Standards, U.S. Department of Commerce, Washington, D.C., 20234. This list includes the purchase price of each publication and gives directions for ordering copies.

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